



CLASSIFICATION ~~RESTRICTED~~
CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT

FOR OFFICIAL USE ONLY
REPORT

STAT

COUNTRY USSR
SUBJECT Scientific Research

DATE DISTR 12 May 1948

NO. OF PAGES 3

PLACE ACQUIRED USSR

UNCLASSIFIED

NO. OF ENCLS. 1769.351
(LISTED BELOW)

DATE OF INFORMATION 1946-47

JAN 27 1955

mm/FDD

SUPPLEMENT TO REPORT NO.

FOR OFFICIAL USE ONLY

STAT

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE ACT OF U. S. C. 51 AND 52, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED. HOWEVER, INFORMATION CONTAINED IN BODY OF THE FORM MAY BE UTILIZED AS DEEMED APPROPRIATE BY THE RECEIVING AGENCY.

THIS IS UNEVALUATED INFORMATION FOR THE RESEARCH USE OF TRAINED INTELLIGENCE ANALYSTS

SOURCE Documentary as indicated. (Information specifically requested.)

RECENTLY PUBLISHED SOVIET RESEARCH ON AEROSOLS

"DDT-Pyrethrum Aerosols -- A New Method for the Control of Mosquitoes and Other Insects: I. Test of American Preparations," B. M. Nikolayev and V. Gutsavich, Naval Med Research Inst and the Dept of Biol and Parasitol, Kirov Acad of Military Med, 4 pp

"Zoologicheskii Zhurnal" Vol 26, No 4, Jul 1947

Discusses results obtained in testing American-made DDT-pyrethrum aerosols. Metal containers found most convenient. Found very effective on mosquitoes and flies. (17723)

"Effect of the Particle Form upon Constant of Aerosol Coagulation Velocity," I. S. Artemov, Lab of Surface Forces, Inst of Phys Chem, Acad Sci USSR, 7 pp

"Kolloidnyi Zhurnal" Vol 9, No 4, Apr 1947

Technique' discussion, illustrated with tables of experimental data, graphs, and photographs, concluding that the constant obtained for speed of coagulation permits finding an explanation by experimental data when various numerical values are obtained for the velocity constant of coagulation with the same weight concentration and the same particle radius. (17780)

- 1 -

CLASSIFICATION ~~RESTRICTED~~

STATE	NAVY	NSRB	DISTRIBUTION
ARMY	<input checked="" type="checkbox"/> AIR	<input checked="" type="checkbox"/>	

FOR OFFICIAL USE ONLY

~~RESTRICTED~~

~~RESTRICTED~~

STAT

"The Mechanism of the Electrification of Artificial Aerosols (Smokes)," A. H. Furman

"Zhurnal Tekhnicheskoy Fiziki" Vol 17, 1947, pp 111-14

In smokes being formed in the combustion of fuels at temperatures ranging from 1300° (wood with 18 per cent moisture), 1500° (hard coal), and 1910° (producer gas), particles are charged positively through thermal electron emission obeying Richardson's law. Electrons are bound by either O or H₂O molecules to form negative ions which in turn can be adsorbed by particles; probability of a direct adsorption of an electron by a particle is small. Formation of negative O₂ ions results in increased ionization of the air, in addition to electrification of the smoke particles. In the temperature interval 500-1000° K no electron emission can take place, only emission of ions; hence, aerosols formed at lower temperatures or cooled down to such temperatures acquire their electric charge mainly through ion emission.

"Dustability and Hygroscopicity of Calcium Arsenate," K. A. Gar

"Khim Prom," 1946, No 11, pp 11-12

This study concerned the hygroscopicity of Ca₃(AsO₄)₂ and its agglomeration at various moisture contents. A special apparatus (described) was used to determine number and size of agglomerates at various moisture contents. Up to 5 per cent of H₂O, Ca₃(AsO₄)₂ could be dusted without difficulty. Presence of NaOH and Na₂CO₃ in the arsenate should be avoided.

"Effect of Foreign Vapors on the Coagulation of Aerosols," I. S. Aronov

"Zhurnal Fizicheskoy Khimii" Vol 20, 1946, p 553-60

Foreign vapors have no effect on rate of coagulation. Data to the contrary are due to technical errors. Mists of a mineral oil, stearic acid, and purified paraffin were produced by cooling the corresponding vapors. Their average particle radius was 10⁻⁵ cm, and the concentration was 23 mg /cu m. Progress of coagulation was followed by counting the particles in dark field illumination. No measurable sedimentation took place during the experiments; change in the particle number was produced solely by formation of larger particles from several small ones. The alleged proofs for the existence of thick adsorption layers on aerosol particles are adversely criticized. (18786)

"Adsorption and Discharge of Free Ions on Surface of Colloid Particles and Its Effect on Ionization and Electrification of Atmospheric Air," Ya. I. Frenkel

"Izvestiya Akad Nauk SSSR, Seriya Geograficheskaya i Geofizicheskaya" Vol 9, 1945, pp 179-93

~~RESTRICTED~~

STAT

Condensation of supersaturated vapor on a drop of liquid suspended in air, neutralization of positive and negative charges on the surface, and the change in charge acquired through the different mobilities of concentrations of the ions at infinite dilution are discussed. The equilibrium state is considered either for the case in which the adsorbed ions retain their charge or are partially neutralized. Corrections are derived for the presence of air and the theory applied then to the ionization of air and its average electrification in the presence of a vertical electric current of constant density.

- E N D -

- 3 -